ODD SEMISTER 2012

TERM TEST 1

SECOND YEAR

SARASWATI COLLEGE OF ENGINEERING, KHARGHAR
DEPARTMENT OF INFORMATION TECHNOLOGY

SUB: **AM-III** MARKS:25

Solve any five of the following.Each question carries equal marks.

Q.1) Find the Laplace transform of $\cos t \cos 2t \cos 3t$.

Q.2) Find the Laplace transform of $e^{4t}\sin^3 t$

Q.3) If L[f(t)]=$\emptyset(s)$ & g(t)=f(t-a), when t>a

=0, when t<a

then prove that L[g(t)]=$e^{-as}\emptyset(s)$.

Q.4) Find the Inverse Laplace transform of $\frac{2s}{s^4+4}$.

Q.5) By Convolution theorem find the Inverse Laplace transform of $\frac{(s^2+s)}{(s^2+1)(s^2+2s+2)}$.

Q.6) If f(t) is periodic function of period 'a', show that L[f(t)]= $\frac{1}{1-e^{-as}}\int_0^a e^{-st}f(t)dt$.

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DEPARTMENT OF INFORMATION TECHNOLOGY

SUB: DBMS and GUI **MARKS: 25**
Solve any 5 Question.

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1. Give four advantages that DBMS has over that of a file system.
   What are the levels of Abstraction offered by a DBMS? Explain
   Them? (5)
2. Draw the typical database system architecture and explain it in detail. (5)
3. Define the following terms
   (i)Primary key (ii)candidate Key (iii) Foreign key (iv) Weak entity set
   (v)Aggregation. (5)
4. Create E-R Diagram for following description:
   Each company operates four departments and each department belongs to one company. Each department employs one or more employees and each employee works for one department. Each Employee may or may not have dependents and each dependent belongs to one employee. Each employee may or may not have employment history? (5)
5. Explain any Five relational algebra operation with an example. (5)
6. Explain(i)DDL (ii)DML SQL commands with an Example. (5)

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DEPARTMENT OF INFORMATION TECHNOLOGY

SUB: DLDA MARKS: 25

Q1. State n prove De'Morgan's theorem.Implement Ex-OR using NAND gates only. (05M)

Q2. Obtain 7-bit Hamming code for (0101). (05M)

Q3. Perform (492)-(275) using 9's &10's complement. (05 M)

Q4. Given logic expression AB+AC+C+AD+ABC+ABC.Express in std. SOP form. Simplify using K-map.Draw logic diagram. (10 M)

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DEPARTMENT OF INFORMATION TECHNOLOGY

SUB: EDC **MARKS: 25**

Q.1 Attempt **any two**. (10)

a. Explain the i/p & o/p characteristics of CE transistor configuration.

b.Explain all the four h-parameters & Explain why they are called as h-parameters.

c. Explain the significance of Q-point or operating point.

Q.2 Write note.(**Any one**) (5)

a. CMRR(Common Mode Rejection Ratio)

b.Stability factor of biasing circuit.

Q.3 Draw the circuit diagram & explain the operation of dual i/p,balanced o/p differential amplifier. (10)

OR

Q.3 For a practical dual i/p,balanced o/p differential amplifier the component values are :Rs=1KΩ,Rc=1KΩ,Re=2.5 MΩ, =50, = =0, =1K& the circuit is operated with differential signal of 1mv & common mode signal of 20mv calculate:-

a. Output voltage

b. CMRR (10)

SARASWATI COLLEGE OF ENGINEERING, KHARGHAR
DEPARTMENT OF INFORMATION TECHNOLOGY

SUB: DSA MARKS: 25

Q1. Distinguish between data type and data structure. Write about scanner. (5)

Q2.what is Recursion? Give disadvantages of recursion.
Implement using Tower of Hanoi. (10)

Q3.which is the different sorting techniques used in data structure? (10)
Explain merge /radix sort in detail.

ODD SEMISTER TERM TEST 2

SECOND YEAR

SARASWATI COLLEGE OF ENGINEERING, KHARGHAR
DEPARTMENT OF INFORMATION TECHNOLOGY

SUB: AM-III MARKS:25

N.B. 1) Question No.1 is compulsory.
2) Attempt any THREE questions out of remaining FOUR questions.

Q.1) Obtain the Fourier expansion of $f(x) = \left(\frac{\pi - x}{2}\right)^2$ in the interval $0 \leq x \leq 2\pi$ & f(x+2π) = f(x)

Also deduce that

$i) \frac{\pi^2}{6} = \frac{1}{1^2} + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \cdots$

$ii) \frac{\pi^2}{12} = \frac{1}{1^2} - \frac{1}{2^2} + \frac{1}{3^2} - \frac{1}{4^2} + \cdots$ **[10 Marks]**

Q.2) Find the Fourier expansion of x^2 in (0 , a). **[05 Marks]**

Q.3) Prove that $f_1(x) = 1$, $f_2(x) = x$, $f_3(x) = \frac{3x^2-1}{2}$ are orthogonal over (-1, 1) **[05 Marks]**

Q.4) Express the following Skew-Hermitian matrix A as $P + iQ$, where P is real Skew-Symmetric & Q is real Symmetric matrix.

$$A = \begin{bmatrix} 2i & 2+i & 1-i \\ -2+i & -i & 3i \\ -1-i & 3i & 0 \end{bmatrix}$$ **[05 Marks]**

Q.5) Find non-singular matrices P & Q such that PAQ is in normal form. Also find their ranks.

$$A = \begin{bmatrix} 1 & 1 & 2 \\ 1 & 2 & 3 \\ 0 & -1 & -1 \end{bmatrix}$$ **[05 Marks]**

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DEPARTEMENT OF INFORMTAION TECHNOLOGY

SUB: DSA **MARKS: 25**

ALL Q are compulsory .

Q.1. Hash the following in a table of size 12.using any two collision resolution techniques. Also calculate the density. [75,66,42,192,91,40,49,87,67,16] 10

Q.2.Construct Huffman tree for [f:5,e:9,c:12,b:12,d:16,a:45] this values? 07

Q.3.Draw the minimum cost spanning tree using kruskal`s algorithm. Also find its cost with all intermediate steps? 08

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DEPARTMENT OF INFORMATION TECHNOLOGY

SUB: DLDA **MARKS:** 25

Q. 1) Minimize the following logic functions using k-maps & realize using NAND gates. 10M
F(a,b,c,d)=∑m(1,3,5,8,9,11,15)+d(2,13)

Q.2) Short note on : (Any 2) 10M
1.Look ahead carry generator
2.ALU
3.Priority encoder

Q.3)Convert RS flipflop to JK,D,T flipflop. 10M

OR

Q.3)Write a truth table & excitation table.Explain master slave JK ff. 10M

Q.4) What is a shift register?Exlain 4-bit bidirectional shift register. 10M

OR

Q.4)Draw and explain 4-bit Johnson's counter. 10M

Q.5)Design mod11 asynchronous up counter. 10M

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SUB: EDC **MARKS: 25**

Q1 is compulsory and attempt any two questions out of remaining

Q1. Attempt **any one** out of two

A. Draw the internal diagram of Timer IC 555 or

A. Explain first order butterworth L.P.F 5

Q2. Explain the working of 3 op-amp instrumentation.Derive the expression for output voltage . 10

Q3. Design astable multivibrator USING IC 555 for a frequency of **1 KHz .**Duty cycle **= 60 %**.What modification you will do for duty cycle = 50 % . Draw the final ckt for both AMV **OR** Derive the frequency of oscillations of wein bridge oscillator and design for the frequency for 1 khZ 10

Q4. A. Explain successive approximation type ADC

AND

B. state barkhaunson's crieteria for oscillations 10

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SUB: GUI & DBMS **MARKS:** 25

1) Question 1 is compulsory.
2) Attempt any two questions out of remaining three questions.

Q 1) Design any application to make use of following controls: (5)
a)Text box
b) Command Button
c) List Box
d) Labels
e) Option Button
f) Check Box

Q 2) what is Transaction? Discuss Transaction diagram and its properties? (10)

Q 3) Explain Conflict Serializabilty and view Serializability. (10)

Q 4)What are causes of Deadlock in the database system? And state Technique to solve this problem. (10)

EVEN SEMISTER 2013

TERM TEST 1

SECOND YEAR

SARASWATI COLLEGE OF ENGINEERING, KHARGHAR

DEPARTMENT OF INFORMATION TECHNOLOGY

Term Test-1 (2013)

SUB: IP MARKS: 25

Note: Question no **one** is compulsory and solves any **two** from remaining questions.

Q.1 what do you mean by accounting and what are its advantages. 5 mark

Q2 from the following information,prepare a trial balance as at 30^{th} june 2006

Discount allowed	1,000
Capital	8,000
Purchases	12,000
sales	20,000
rent payable	2,000
discount receivable	1,000
expenses account	500
drawings account	2,500
assets account	10.000
commission account	2,000
rent account	3,000

10mark

Q.3 Explain partnership and limited companies. 10mark

Q4 Explain i)assets
ii)credit and debit balance
iii)journal
iv)opening and closing 10mark

SARASWATI COLLEGE OF ENGINEERING, KHARGHAR

DEPARTMENT OF INFORMATION TECHNOLOGY

Term Test-1 (2013)

SUB: IP MARKS: 25

Note: Question no **one** is compulsory and solves any **two** from remaining questions.

Q1.Differance b/w: HTTP1.0 and HTTP 1.1 05

Q2.Explain Frameset, Frame, Noframe, iframe and Frame border with the help of example? 10

Q3.What is CSS? Explain CSS Positioning and Padding with example? 10

Q4.Short Note(Any Two):

(a) Embedded and External JavaScript.

(b)XML and HTML.

(c) Cookies. 10

SARASWATI COLLEGE OF ENGINEERING, KHARGHAR
DEPARTMENT OF INFORMATION TECHNOLOGY
Term Test-1 (2013)

SUB: MPMC Term Test-1 (2013) MARKS 25

Note:-Question no **one** is compulsory and solves any **two** from remaining questions.

Q1) Compare minimum mode and maximum mode of 8086. **(5)**
Q2) Explain the architecture of 8086 in detail**.** **(10)**
Q3) Explain the Addressing mode of 8086 with example. **(10)**
Q4) Compare BIU and EU of 8086 microprocessor. (10)

Saraswati Education Society's

SARASWATI COLLEGE OF ENGINEERING, KHARGHAR

Information Technology Department

Note: Q1 is compulsory. Solve any two questions from remaining two.

Q1: What is CRC? Explain the algorithm for computing checksum using CRC. [5M]

Q2: A] Differentiate between ALOHA, Slotted ALOHA and CSMA/CD [5M]

B] Compare Circuit Switching and Packet Switching. [5M]

Q3: Explain OSI reference model and compare it with TCP/IP model. [10M]

Q4:Write Short Note on:

A]Network topology

B] Multiplexing Techniques. [10M]

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DEPARTMENT OF INFORMATION TECHNOLOGY
Term Test-1 (2013)

SUB: PCOM MARKS 25

Question no **one** is compulsory and solves any **two** from remaining questions.

Q1. Draw the time domain and frequency domain spectrum of (5)
(DSB FC) , (DSB SC) and (SSB SC)

Q2. Derive friss formula &define S/N ratio, noise factor, noise figure (10)
For each stage with noise figure of 3dB and power gain 10 dB, determine total noise figure

Q3. Derive AM Modulated wave mathematically. (10)
An AM Modulated wave has a form of :
Xc(t) : [10(1+ 0.6 cos 2000 π t + 0.4 cos 400 π t)cos 20,000π t]
1. Sketch frequency spectrum
2. Find the power content of each spectrum
3. Modulation index

Q4. Explain ISB SYSTEM **OR**
EXPLAIN Selectivity, sensitivity, image frequency ,double spotting, AGC (10)

SARASWATI COLEGE OF ENGINEERING, KHARGHAR

UNIT TEST I

S.E.I.T.

SUB : COMPUTATIONAL MATHEMATICS(CM) DATE :

TIME : 1 HOUR MARKS 25

NOTE : Question no. 1 is compulsory.

Attempt any 2 questions from Q.2 to Q.4 of 10 marks each.

Q. 1 Given (5 marks)

x	1	3	4	6
F(x)	-3	9	30	132

Express f(x) as third degree polynomial in X using Lagrange's interpolation formula. Also find f'(x) at x=1

Q.2 A) Derive the formula for $\sqrt[3]{N}$ where N is positive number and hence estimate $\sqrt[3]{11}$. Using Newton Raphson method.

B) Solve the following equations using Gauss Seidel method up to 4 iterations

4x – 2y – z = 40

x – 6y + 2z = (-28)

x – 2y +12 z = (-86)

Q.3 A) Compute the value of the definite integral $\int_{0.2}^{1.4} (\sin x - \log_e x + e^x)\, dx$. using any one method.

B) Find the root of cos x - xe^x = 0 by secant method upto 4 places of decimal.

Q.4 A) Find the missing term in a series making necessary assumptions.

x	0	1	2	3	4	5
Y	2	8		44		152

B) From the table find f(-2.5)

x	1	2	3	4
Y	1	-3	-1	13

TERM TEST 2

SWARASWATI COLLEGE OF ENGINEERING, KHARGHAR
DEPARTMENT OF INFORMATION TECHNOLOGY.

Sub :- **FAM**

Note: Question no one is compulsory and solves any two from remaining questions.

Q1 : Explain S-curve model in technology improvement and state its limitation? 5 Mark
Q2: Explain three critical trajectories imparting the innovation process? 10 mark
Q3: Explain annual Report and international accounting? 10mark
Q4: Following is the trial balance of Ganesh Traders as on 31st March,2006:10 mark

Debit Balances	Amt	Credit balances	Amt
Debtors	16000	Capital	42000
Bills Receivable	4800	Creditors	12000
Furniture	3000	Bills Payable	6400
Machinery	20000	Wages outstanding	500
Salaries	4000	Reserve for DoubtfulDebts	1000
Electricity	1200	Gross Profit	10,000
Rent	2000		
AdvertisementExpenses	1600		
Closing stock	3000		
Interest on Investment	12000		
Bank	4300		
	71,900		71,900

Prepare a profit and loss account for the year ending 31st march,2012 and a balance sheet as on that date with the following adjustments:

- Rent is prepaid for Rs 200.
- A provision for doubtful debts and provisions for discount on debtors on debtors are to be made both at 5% on sundry debtors.
- Depreciate machinery at 10%p.a. and furniture at 20%p.a.

SARASWATI COLLEGE OF ENGINEERING, KHARGHAR
DEPARTMENT OF INFORMATION TECHNOLOGY

Term Test-2 (2013)

SUB: IP MARKS: 25

Note: Question no **one** is compulsory and solves any **two** from remaining questions.

Q1.Write a note on:
(i) Declaration Tag (ii) Expression Tag (iii) Scriptlet Tag (iv)Action Tag 05

Q2. What do you mean by Session Management? Explain various ways of Session Management with example? 10

Q3. Explain DHTML? Write a DHTML program that changes the image based on Downward & Upward movement of mouse click? 10

Q4.Short Note (Any Two): (a) Servlet Life Cycle. (b) Built -in objects in ASP.
(c) XSL Elements. (d) Web Services.
(e) JDBC API. 10

SARASWATI COLLEGE OF ENGG
INFORMATION TECHNOLOGY DEPT.

Subject:-MPMC **UNIT TEST-II** **Max Marks:-25**
Date:-10/4/2013 **Time:-1Hrs**

Note:-Question No 1 is compulsory & solve any two from remaining.

Q1) Explain the following instruction

1) XLAT
2) MOVC A, @A+DPTR
3) ACALL address
4) CJNE @Ri,#data,rel
5) SJMP 25 (5)

Q2) Explain jump &CALL instruction of 8051 microcontroller with examples (10)

Q3) Write short note on i) 8051 register Banks ii) port structure of 8051 (10)

Q4) Write ALP for generating 100ms delay, assuming the system frequency to be 10MHZ (10)

Q5) Design 8086 microprocessor based system in minimum mode with following specifications

1) CPU with 8MHZ clock. 2)64 KB RAM using 16 KB devices. 3)32 KB EPROM using 8KB devices. (10)

SARASWATI COLLEGE OF ENGINEERING, KHARGHAR
DEPARTMENT OF INFORMATION TECHNOLOGY
Term Test-2 (2013)

SUB: IP MARKS: 25

Note: Question no **one** is compulsory and solves any **two** from remaining questions.

Q1. Write short note on pre emphasis and de emphasis 5

Q2.Explain the working of foster sealey discriminator in detail. Explain the advantages over balanced slope and disadvantages over ratio detector. 10

Q3.Explain delta modulation in detail.What are the drawbacks and how are they overcame by ADM? 10

Q4.Identify the wave EQ. & find carrier ,modulating frequencies ,modulation index & max. Deviation of wave.
E=10 sin (6*10^8 t +5 sin 1250 t).what power will it dissipate in 20Ω resisto r?
AND
state the types of pulse modulation and digital transmission techniques . 10

SARASWATI COLLEGE OF ENGINEERING , KHARGHAR, NAVI MUMBAI
UNIT TEST II

S.E.I.T MATHEMATICS Total Marks 25

Note : Q1. Compulsory Solve any two questions out of Q2 to Q.4

Q.1 .Fit a straight line to the following data. Also estimate the production in 1987

YEAR (X)	1951	1961	1971	1981	1991
PRODUCTION (Y)(IN 000TONES)	10	12	8	10	13

Q2a)Solve the following L.P.P using Simplex method

Minimise $z = x_1-3x_2+3x_3$, $3x_1-x_2+2x_3 \leq 7$, $2x_1+4x_2 \geq(-12)$,
$-4x_1+3x_2+8x_3 \leq 10$

b) A sample of size 10 produced on a machine gave the mean diameter of 0.743" with standard deviation of 0.05". Construct 95% confidence interval for the population mean.

Q3a)The average marks scored by 32 boys is 72 with standard deviation 8, while that of 36 girls is 70 with standard deviation 6. Test 1% level of significance whether the boys perform better than girls.

b)In a factory large number of workers have average daily income of Rs. 120. If 38.3% of them have the income between Rs. 100 to Rs.140. And 528 of them get more than Rs. 170, How many workers were interrogated ?

Q.4.

a)Obtain rank correlation coefficient for the following data

x	10	12	18	18	15	40
y	12	18	25	25	50	25

b)Fit a Poission distribution for the following data

x	0	1	2	3	4	5	Total
f	142	156	69	27	5	1	400